

CHAPTER 8

ROAD MARKINGS & SIGNS

DRAWING TITLE	DRAWING NO.	REVISION
LANE MARKINGS (SHEET 1 OF 3)	LTA/SDRE14/8/RMS1	C
LANE MARKINGS (SHEET 2 OF 3)	LTA/SDRE14/8/RMS2	B
LANE MARKINGS (SHEET 3 OF 3)	LTA/SDRE14/8/RMS3	A
ARROW MARKINGS	LTA/SDRE14/8/RMS4	A
MULTI-HEAD ARROW FOR TURNING MOVEMENTS	LTA/SDRE14/8/RMS5	A
TYPICAL ACCELERATION LANE AT EXPRESSWAY	LTA/SDRE14/8/RMS6	A
TYPICAL DECELERATION LANE AT EXPRESSWAY	LTA/SDRE14/8/RMS7	A
CHEVRON MARKINGS	LTA/SDRE14/8/RMS8	A
ROAD SIGNS & MARKINGS AT INTERSECTIONS	LTA/SDRE14/8/RMS9	C
BUS LANE MARKINGS	LTA/SDRE14/8/RMS10	C
MANDATORY GIVE WAY TO BUS (MGWTB)	LTA/SDRE14/8/RMS11	-
PAVEMENT MARKINGS FOR SHARP CURVE	LTA/SDRE14/8/RMS12	A
CURVE ALIGNMENT MARKERS (CAM)	LTA/SDRE14/8/RMS13	-
GUIDING LINES AND TURNING POCKETS AT INTERSECTIONS	LTA/SDRE14/8/RMS14	A

TYPE	MARKINGS	DESCRIPTION	THICKNESS OF THERMOPLASTIC PAINT (mm)
A		These white lines are used to indicate the edge of the carriageway adjacent to auxillary lanes eg. exclusive right / left turn lanes at junctions, lay-by, bus bay, guidling lines etc.	3.0
A1		These yellow lines are used along normal bus lanes to indicate a break for use by other turning vehicles.	1.5
A2		These white lines are used to indicate the edge of the carriageway adjacent to auxillary lanes eg. exclusive right/left turn lanes at acceleration / deceleration lanes along expressways. It is also known as speed change lane marking.	3.0
A3		These broken yellow lines are used to guide drivers emerging from the side road to keep away from the leftmost traffic lane, which is a normal bus lane. It gives the road users advance warning and provides clearer guidance to motorists of normal bus lane ahead.	1.5
A4		These broken white lines are used to demarcate signalised pedestrian crossing lines.	5
A5		These broken white lines are used for guiding motorists across junctions.	3.0
A6		These yellow and red lines are used along full day bus lane to indicate a break for use by other turning vehicles.	1.5 (Yellow Line) 1.5 (Red Line)
A7		These broken yellow and red lines are used to guide drivers emerging from the side road, to keep away from the left-most traffic lane, which is a full day bus lane. It gives the road users advance warning and provides clearer guidance to motorists of full day bus lane ahead.	1.5 (Yellow Line) 1.5 (Red Line)
A8		These broken white lines are used to demarcate signalised bicycle crossing lines.	3.0
B		These white lines are used as lane marking between lanes at other roads & tunnels.	3.0
B1		These white lines are used as lane marking between lanes on expressway only.	3.0
C		These white lines are used as lane markings at light controlled intersection and along the approaches at / before the stop line. Generally 7 to 10 markings are painted.	3.0

NOTES:

- Single / double yellow lines are not required under the following situations:
 - flyover and underpass
 - ramps leading to flyover and underpass
 - slip road (both sides)
 - edge of traffic island (forming the slip road) at road intersection
- Thermoplastic road marking materials shall comply with SS 589:2013.

3. The dimensioning lane width shall be taken from the centre of lane markings. See diagram A

DIAGRAM A

STANDARD DETAIL	
LANE MARKINGS (SHEET 1 OF 3)	
REV.	DATE
C	APR 2019
B	SEP 2017
A	OCT 2015

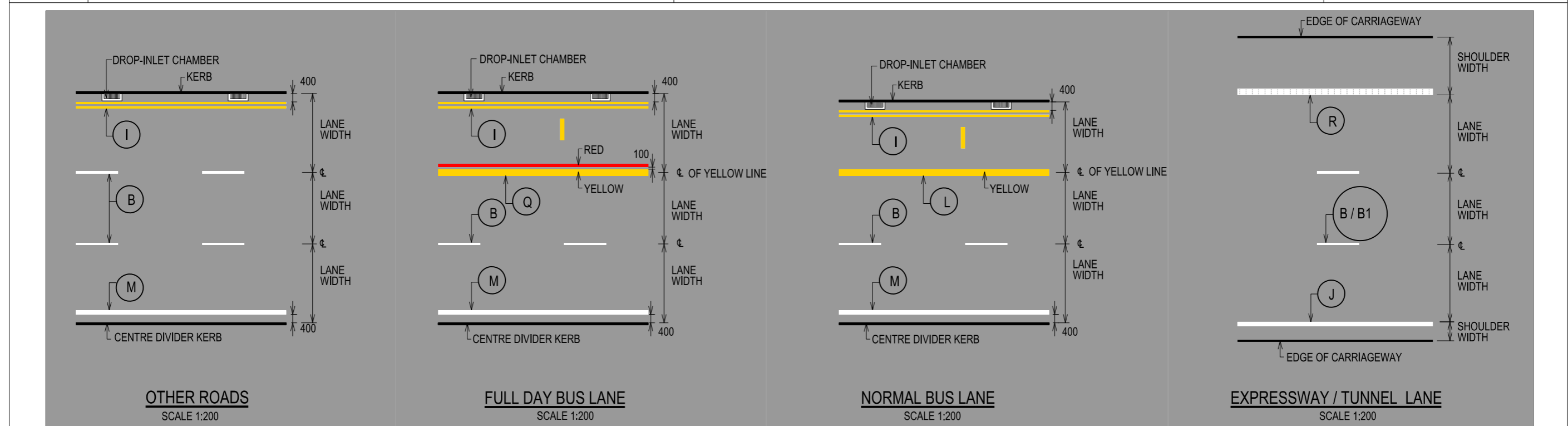
Land Transport Authority

DRAWING NO. LTA/SDRE14/8/RMS1		REV. C
DATE OF ISSUE 1st APR 2014	SCALE 1:100	SHEET NO. 1 OF 3

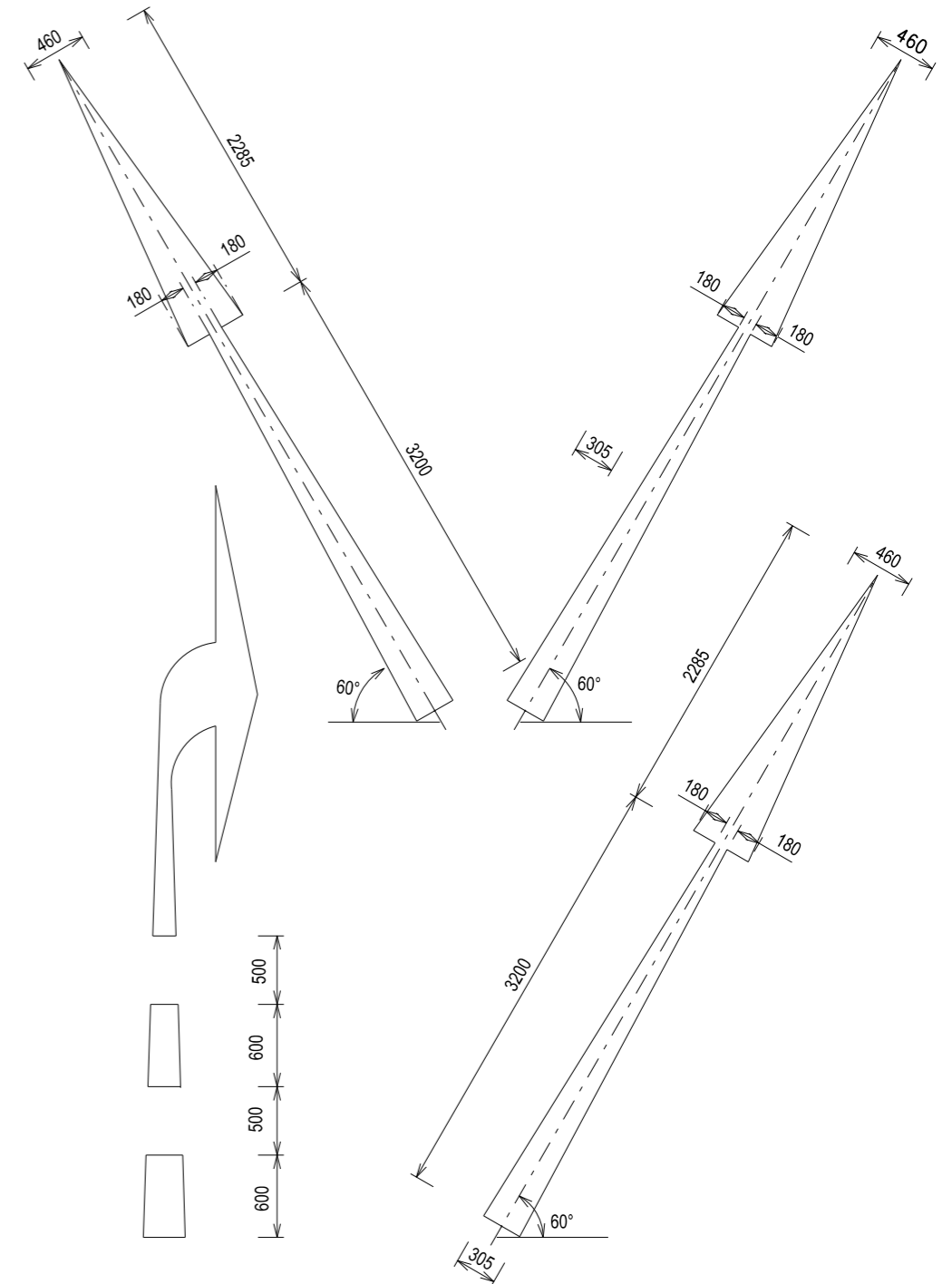
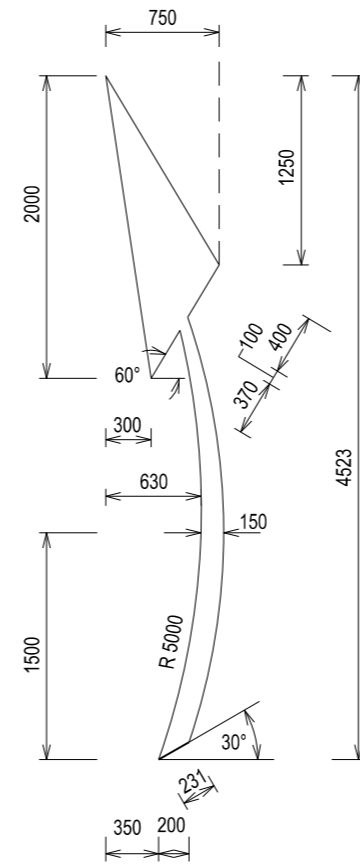
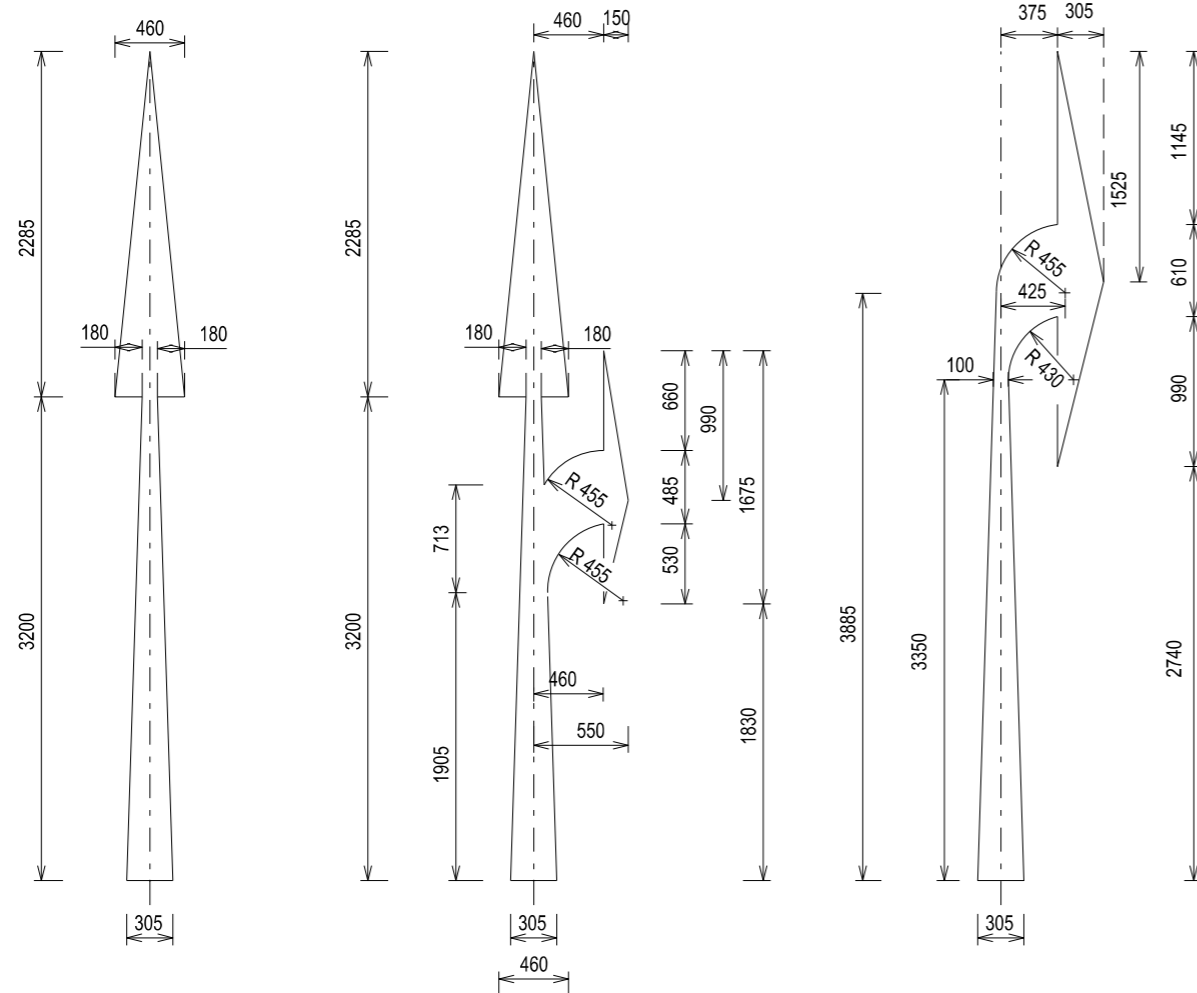
TYPE	MARKINGS	DESCRIPTION	THICKNESS OF THERMOPLASTIC PAINT (mm)
(D)		Two parallel white lines indicate that traffic approaching these lines is to give way to oncoming traffic either on the left or right.	3.0
(E)		These white lines are used as centre lines on a two-way carriageway.	3.0
(F)		This continuous white line is used as a centre line on a two-way carriageway and also indicates no parking on both sides.	3.0
(G)		This continuous yellow line by the side of the carriageway indicates no parking from 7.00a.m. to 7.00p.m. on that side of the carriageway except Sundays and public holidays. (See notes in Dwg No: LTA/SDRE14/8/RMS1)	1.5
(H)		Two parallel continuous white lines are used as centre line on a two-way carriageway or between lanes to indicate no crossing of the lines.	3.0
(I)		Two parallel continuous yellow lines by the side of the carriageway indicate no parking at all times on that side of the carriageway. (See notes in Dwg No: LTA/SDRE14/8/RMS1)	1.5
(J)		This continuous white line is used along expressway adjacent to paved shoulder and also as stop lines.	3.0
(K)		These zig zag white lines are used to indicate approaching zebra crossing. they also indicate no crossing and no parking at area where these lines are painted.	3.0
(L)		This continuous yellow line is used as normal bus lane marking.	1.5
(M)		This continuous white line is used as edgelines painted next to the centre divider kerbs along dual 3-lane (and above) roads where street lightings are not provided along the centre divider.	3.0 (Edgeline)
(N)		These continuous yellow lines are used for yellow box junction. 200mm for the diagonals and 450mm for the sides.	3.0

		<table border="1"> <tr> <td colspan="2">STANDARD DETAIL</td> </tr> <tr> <td colspan="2">LANE MARKINGS (SHEET 2 OF 3)</td> </tr> <tr> <td>REV.</td> <td>DATE</td> </tr> <tr> <td>B</td> <td>SEP 2017</td> </tr> <tr> <td>A</td> <td>OCT 2015</td> </tr> </table>	STANDARD DETAIL		LANE MARKINGS (SHEET 2 OF 3)		REV.	DATE	B	SEP 2017	A	OCT 2015	<p style="text-align: center;">Land Transport Authority</p> <table border="1"> <tr> <td colspan="2">DRAWING NO.</td> <td>REV.</td> </tr> <tr> <td colspan="2">LTA/SDRE14/8/RMS2</td> <td>B</td> </tr> <tr> <td>DATE OF ISSUE</td> <td>SCALE</td> <td>SHEET NO.</td> </tr> <tr> <td>1st APR 2014</td> <td>1:100</td> <td>2 OF 3</td> </tr> </table>	DRAWING NO.		REV.	LTA/SDRE14/8/RMS2		B	DATE OF ISSUE	SCALE	SHEET NO.	1st APR 2014	1:100	2 OF 3
STANDARD DETAIL																									
LANE MARKINGS (SHEET 2 OF 3)																									
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DATE OF ISSUE	SCALE	SHEET NO.																							
1st APR 2014	1:100	2 OF 3																							

TYPE	MARKINGS	DESCRIPTION	THICKNESS OF THERMOPLASTIC PAINT (mm)
O		Single zig zag yellow line at the edge of a road prohibiting parking at all times.	1.5
P		Double zig zag yellow line at the edge of a road prohibiting stopping of vehicles at all times unless the vehicle is prevented from proceeding due to traffic conditions.	1.5
Q		These continuous yellow & red lines are used as full day bus lane marking.	1.5 (Yellow Line) 1.5 (Red Line)
R		Raised profile marking to be provided for the following: <ul style="list-style-type: none"> - From the start of the shoulder marking at the exit road to 10m behind the gore area - From the start of chevron to 10m after the gore area - From the start of the deceleration lane along expressway next to paved shoulder - Continuously along the expressway shoulder lane next to slow lane 	



		STANDARD DETAIL LANE MARKINGS (SHEET 3 OF 3)	DRAWING NO. LTA/SDRE14/8/RMS3 DATE OF ISSUE 1st APR 2014 SCALE AS SHOWN SHEET NO. 3 OF 3 REV. A
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TO INDICATE CERTAIN TRAFFIC MOVEMENT WITH TIME LIMIT

NOTES:

1. Thickness of thermoplastic paint is 3mm.

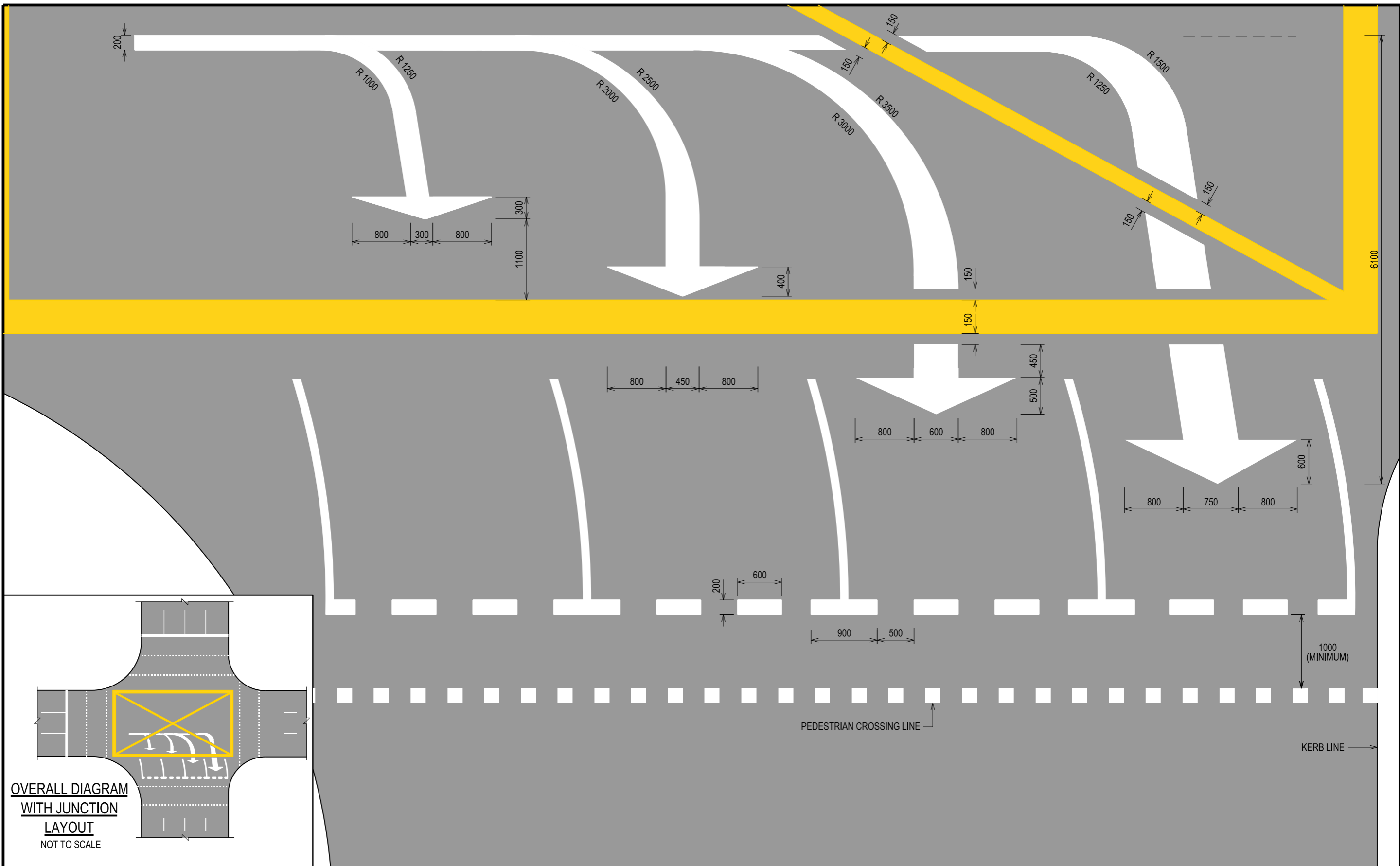
STANDARD DETAIL

ARROW MARKINGS



DRAWING NO.		REV.
LTA/SDRE14/8/RMS4		A
DATE OF ISSUE	SCALE	SHEET NO.
1st APR 2014	1:50	1 OF 1

REV.	DATE
A	OCT 2015



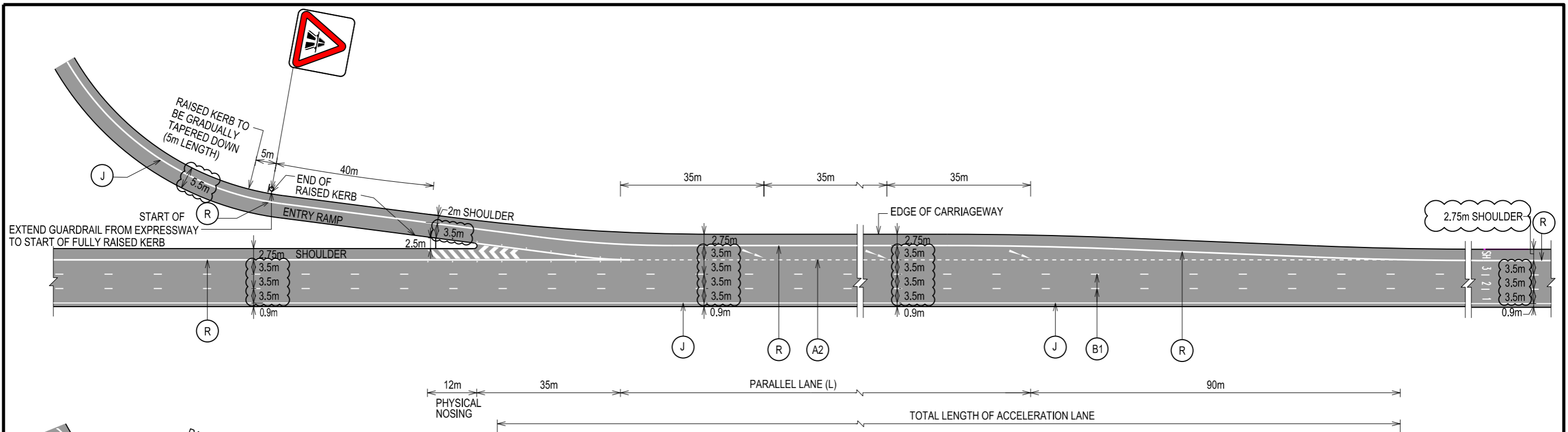
OVERALL DIAGRAM WITH JUNCTION LAYOUT
NOT TO SCALE

NOTES:
1. Thickness of thermoplastic paint is 3mm.

STANDARD DETAIL	
MULTI-HEAD ARROW FOR TURNING MOVEMENTS	
REV.	DATE
A	OCT 2015

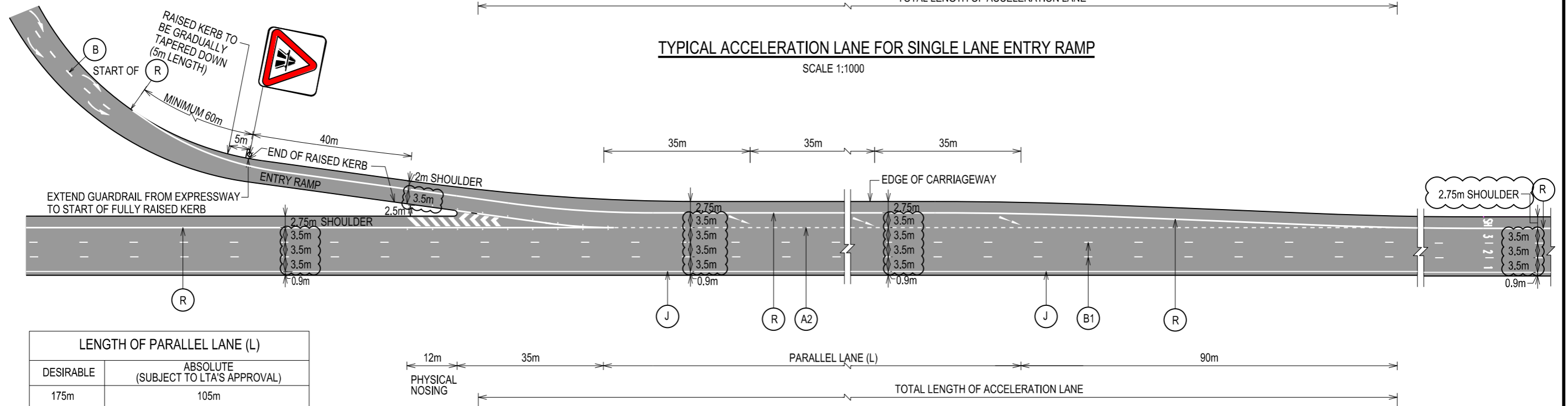


DRAWING NO. LTA/SDRE14/8/RMS5		REV. A
DATE OF ISSUE 1st APR 2014	SCALE 1:50	SHEET NO. 1 OF 1



TYPICAL ACCELERATION LANE FOR SINGLE LANE ENTRY RAMP

SCALE 1:1000



TYPICAL ACCELERATION LANE FOR TWO LANE ENTRY RAMP

SCALE 1:1000

LENGTH OF PARALLEL LANE (L)	
DESIRABLE	ABSOLUTE (SUBJECT TO LTA'S APPROVAL)
175m	105m

NOTES:

1. Appropriate width of the slip road shall be provided based on the various radii of the slip road, in accordance to Civil Design Criteria.

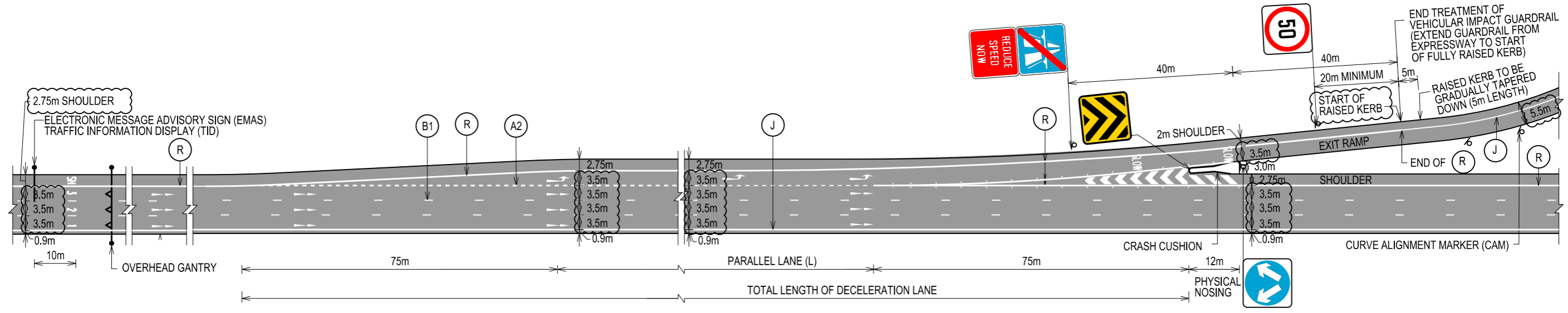
STANDARD DETAIL

TYPICAL ACCELERATION LANE AT EXPRESSWAY

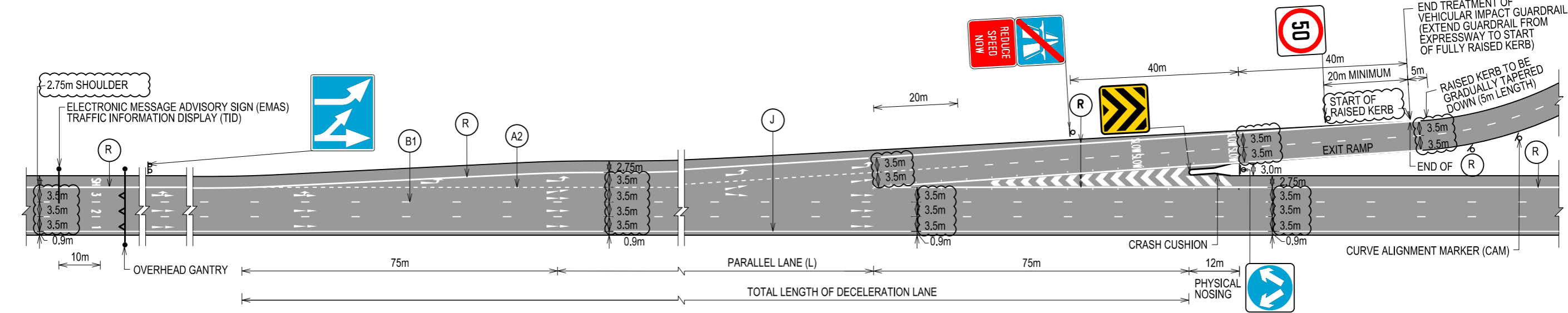


DRAWING NO.		REV.
LTA/SDRE14/8/RMS6		A
DATE OF ISSUE	SCALE	SHEET NO.
1st APR 2014	AS SHOWN	1 of 2

REV.	DATE
A	SEP 2017



TYPICAL DECELERATION LANE AT EXIT FOR SINGLE LANE EXIT RAMP

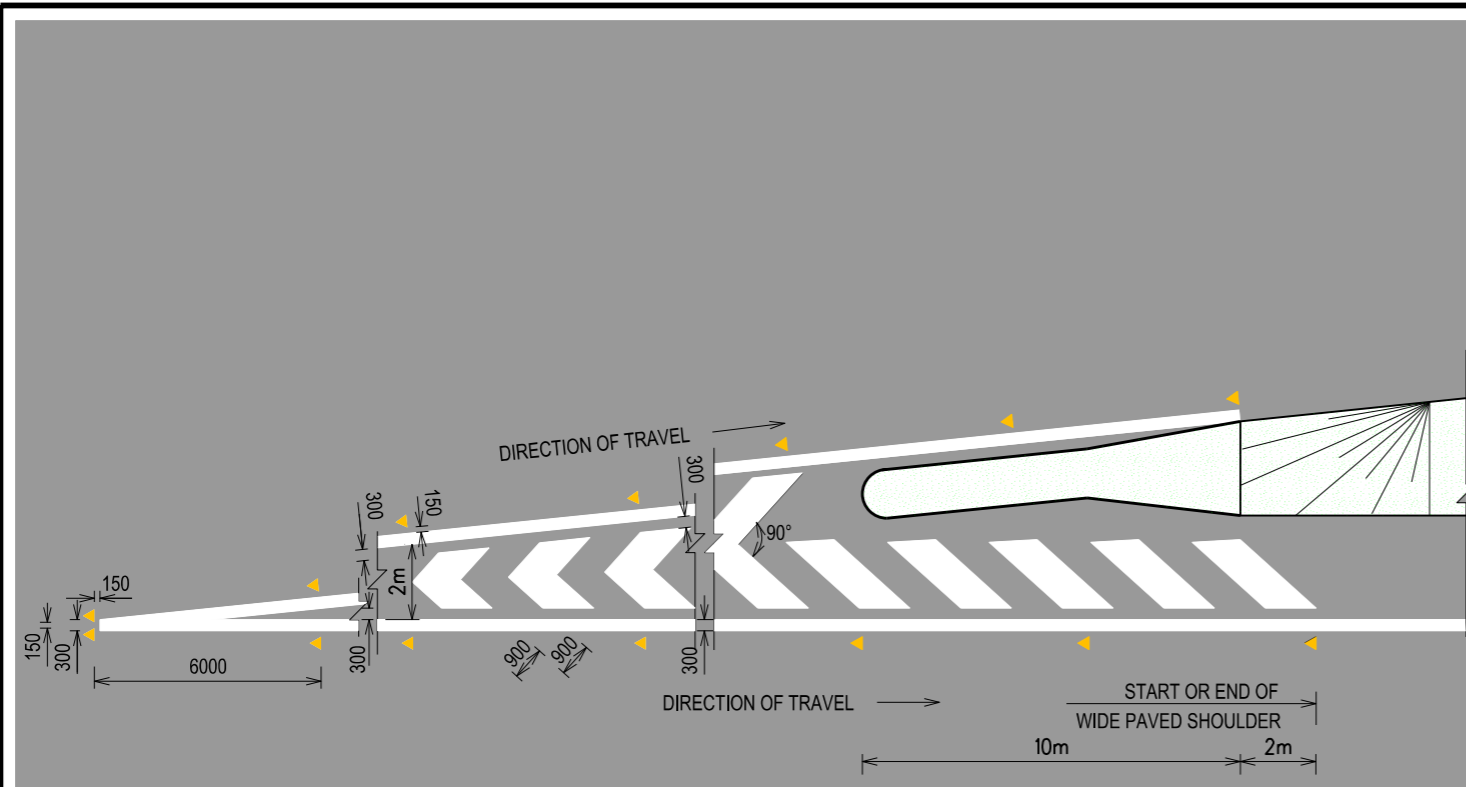


TYPICAL DECELERATION LANE AT EXIT FOR TWO LANE EXIT RAMP

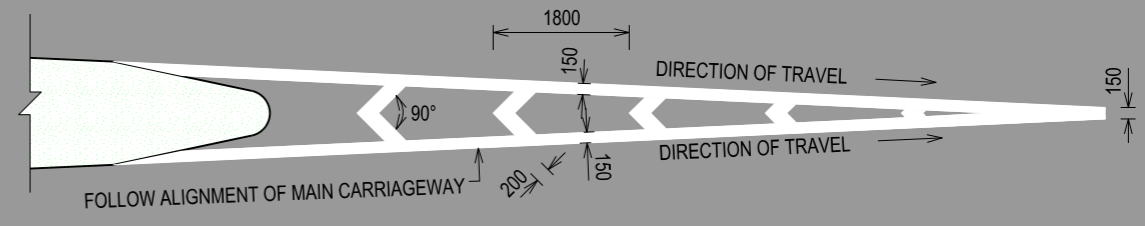
LENGTH OF PARALLEL LANE (L)		
DESIRABLE	MINIMUM	ABSOLUTE (SUBJECT TO LTA'S APPROVAL)
150m	80m	10m

- NOTES:**
- Area between the slip road and main road behind the nosing shall be graded level with carriageway and shall be free of signs, trees, lamp posts and other hard objects except split arrows and object marker sign.
 - Total length of the deceleration lane can be further reduced to absolute minimum value of 160m due to site constraint subject to approval by LTA.
 - Appropriate width of the slip road shall be provided based on the various radii of slip road, in accordance to Civil Design Criteria.

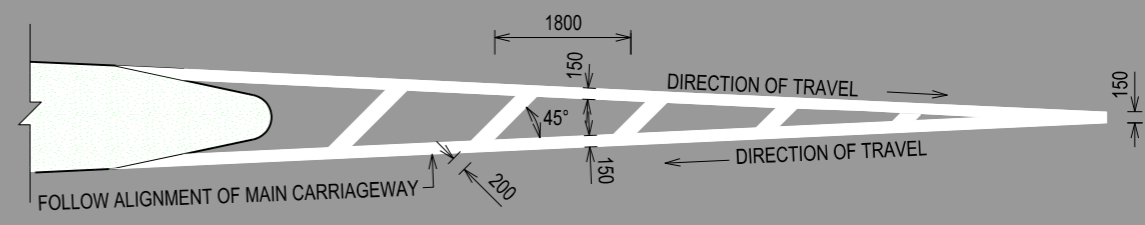
<p>STANDARD DETAIL</p> <p>TYPICAL DECELERATION LANE AT EXPRESSWAY</p>				
		DRAWING NO. LTA/SDRE14/8/RMS7	REV. A	
REV. A DATE	SEP 2017	DATE OF ISSUE 1st APR 2014	SCALE 1:1000	SHEET NO. 2 of 2



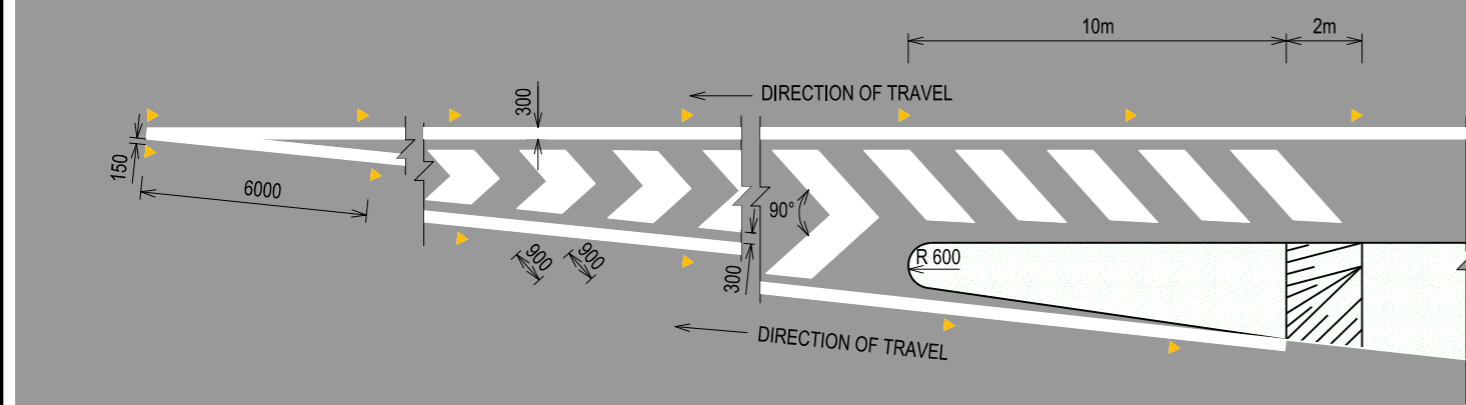
CHEVRON MARKING & RAISED PAVEMENT MARKER ON EXPRESSWAY EXIT



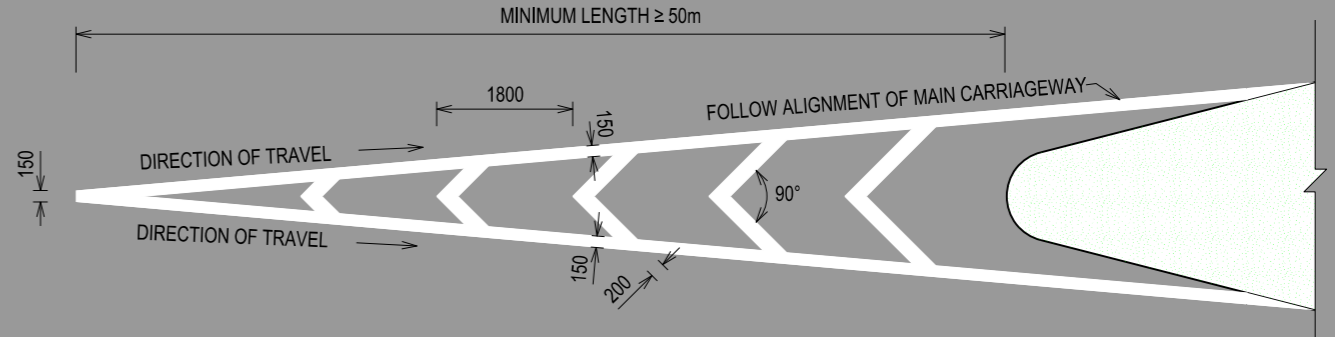
CHEVRON MARKING WHERE TWO TRAFFIC STREAMS MERGE



DIAGONAL MARKING IN ADVANCE OF MEDIAN ISLAND



CHEVRON MARKING & RAISED PAVEMENT MARKER ON EXPRESSWAY ENTRANCE



CHEVRON MARKING WHERE A TRAFFIC STREAM DIVIDES

LEGEND :

▶ RAISED REFLECTIVE PAVEMENT MARKERS (AMBER)

CHEVRON MARKING ON EXPRESSWAY

SCALE 1:200

CHEVRON MARKING ON OTHER ROAD










SCALE 1:100

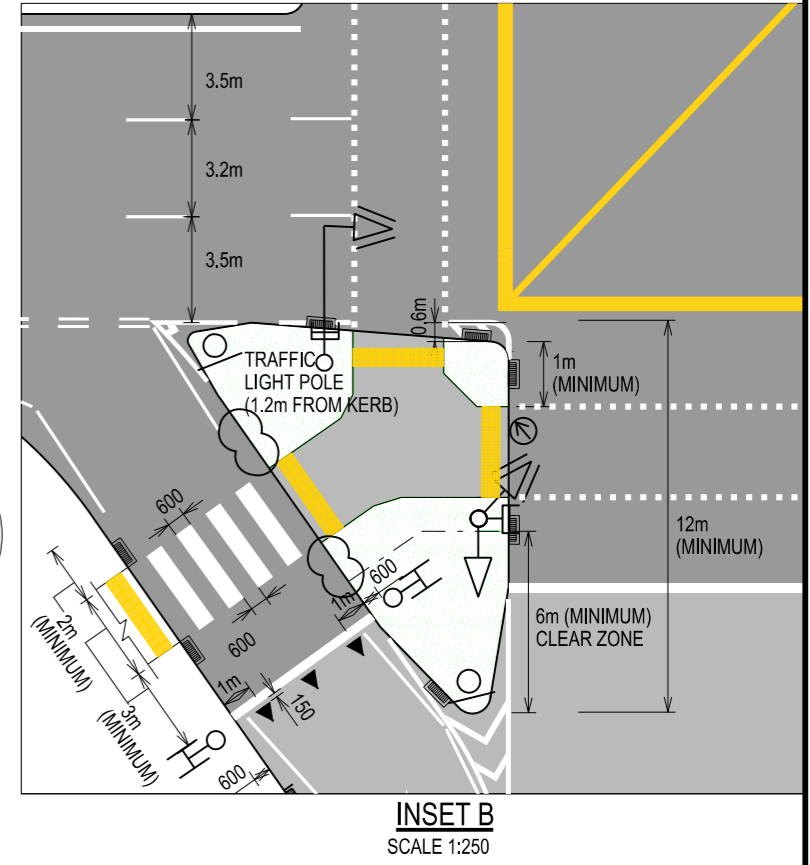
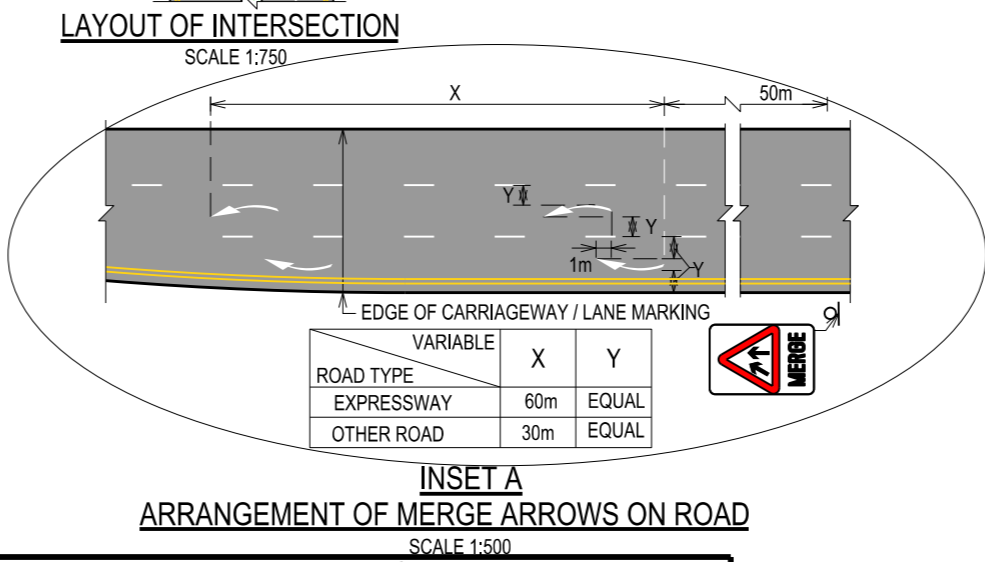
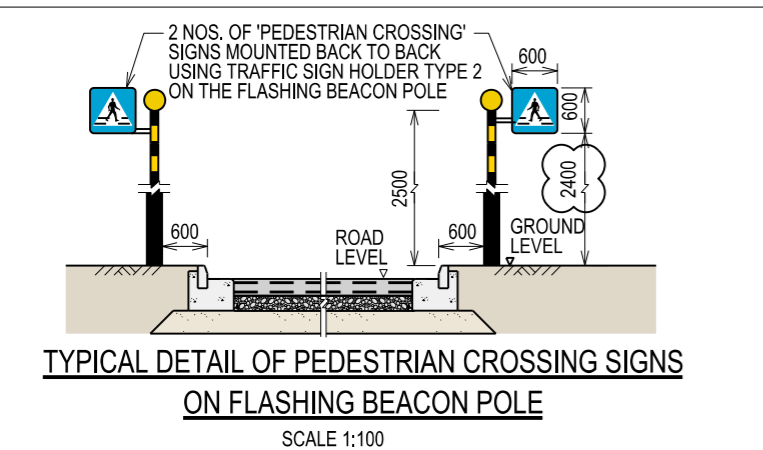
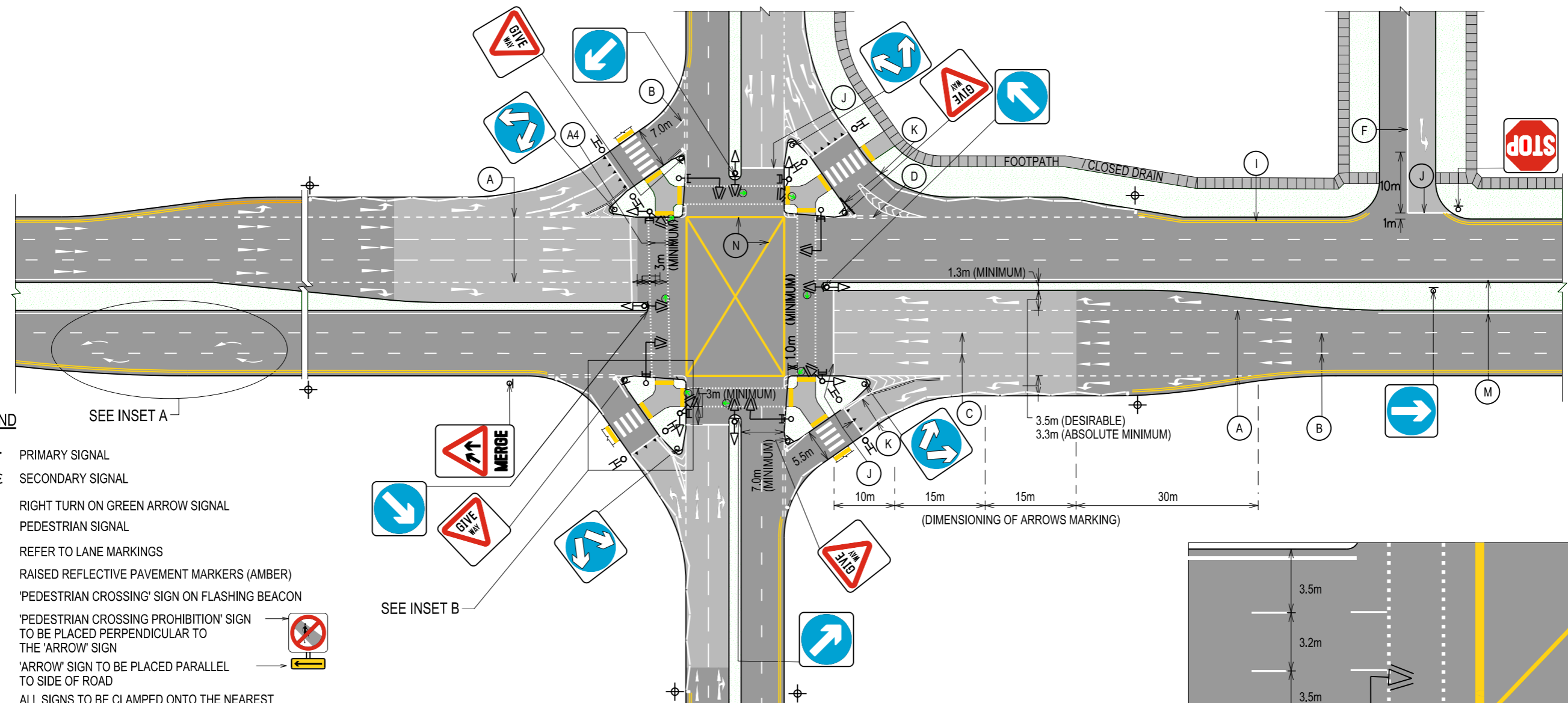
NOTES:

1. The raised reflective pavement markers shall be complied with the requirements laid down in BS 8442:2006, BS EN 12899-1:2007, BS EN 1463-1:2009.
2. Thickness of thermoplastic paint is 3mm.

		STANDARD DETAIL			
		CHEVRON MARKINGS			
		DRAWING NO.		LTA/SDRE14/8/RMS8	
		DATE OF ISSUE		1st APR 2014	
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		SHEET NO.		1 OF 1	
A		OCT 2015		REV. A	
REV.		DATE			

LEGEND

-  PRIMARY SIGNAL
 -  SECONDARY SIGNAL
 -  RIGHT TURN ON GREEN ARROW SIGNAL
 -  PEDESTRIAN SIGNAL
 -  REFER TO LANE MARKINGS
 -  RAISED REFLECTIVE PAVEMENT MARKERS (AMBER)
 -  'PEDESTRIAN CROSSING' SIGN ON FLASHING BEACON
 -  'PEDESTRIAN CROSSING PROHIBITION' SIGN TO BE PLACED PERPENDICULAR TO THE 'ARROW' SIGN
 -  'ARROW' SIGN TO BE PLACED PARALLEL TO SIDE OF ROAD
- ALL SIGNS TO BE CLAMPED ONTO THE NEAREST EXISTING LAMPOSTS WHEREVER POSSIBLE AND SUBJECT TO SO'S APPROVAL
- TO BE LOCATED 50m FROM PEDESTRIAN CROSSING







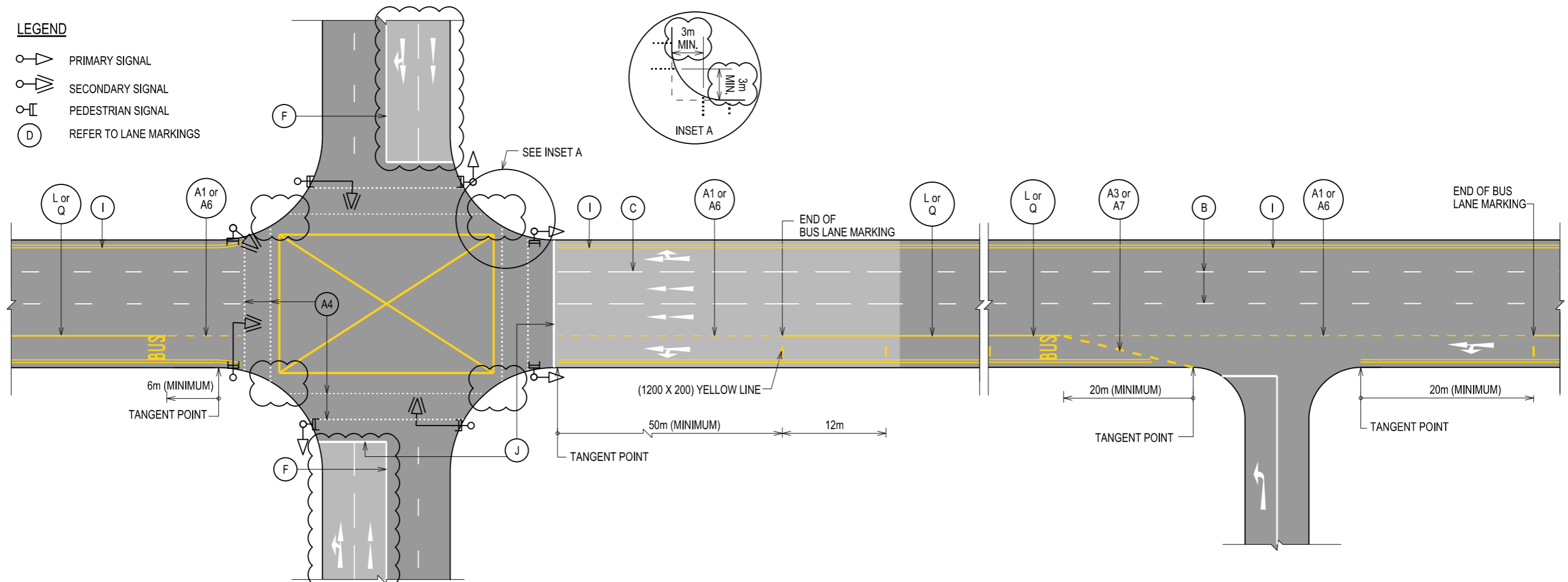
- NOTES:**
1. For pedestrian crossing with green and red man aspect, crossing is to be painted white.
 2. For pedestrian crossing without green and red man aspect, crossing is to be painted yellow.
 3. However, where site condition necessitates it, the stop line can be more than a metre from the mouth of the junction.
 4. If the width of centre median does not permit the erection of 'Keep Left' sign, spring-loaded delineator post shall be used.
 5. The zig zag markings must not overlap existing double yellow lines.

6. The zig zag markings shall be 350mm away from the road kerb.
7. The 'Pedestrian Crossing' sign shall face the oncoming traffic and erect away from the road kerb.
8. The 'Pedestrian Crossing' sign is to be erected on existing lamppost / traffic light pole / any sign pole that is located less than 1m away from the flashing beacon pole.
9. There shall be no additional loading on the flashing beacon pole other than 'Pedestrian Crossing' signs.
10. Thickness of thermoplastic paint for zebra crossing marking is 3mm.
11. Appropriate width of the slip road shall be provided based on the various radii of slip road, in accordance to civil design criteria.

STANDARD DETAIL		Land Transport Authority	
ROAD SIGNS & MARKINGS AT INTERSECTIONS		DRAWING NO.	REV.
		LTA/SDRE14/8/RMS9	C
DATE OF ISSUE	SCALE	SHEET NO.	
1st APR 2014	AS SHOWN	1 OF 1	

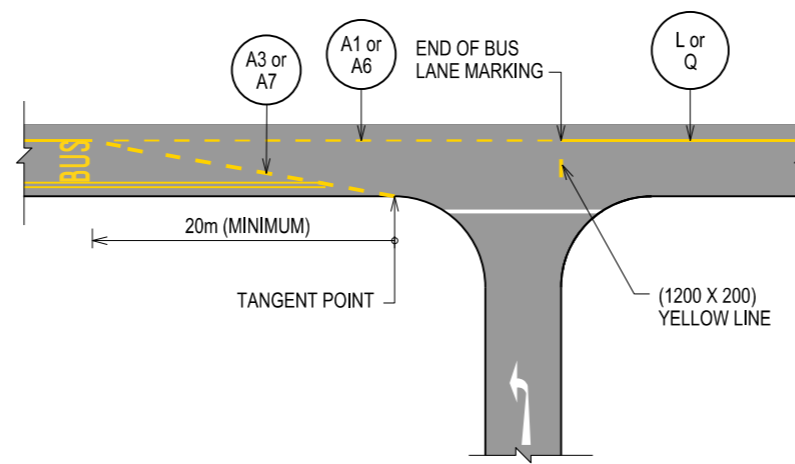
LEGEND

-  PRIMARY SIGNAL
-  SECONDARY SIGNAL
-  PEDESTRIAN SIGNAL
-  REFER TO LANE MARKINGS



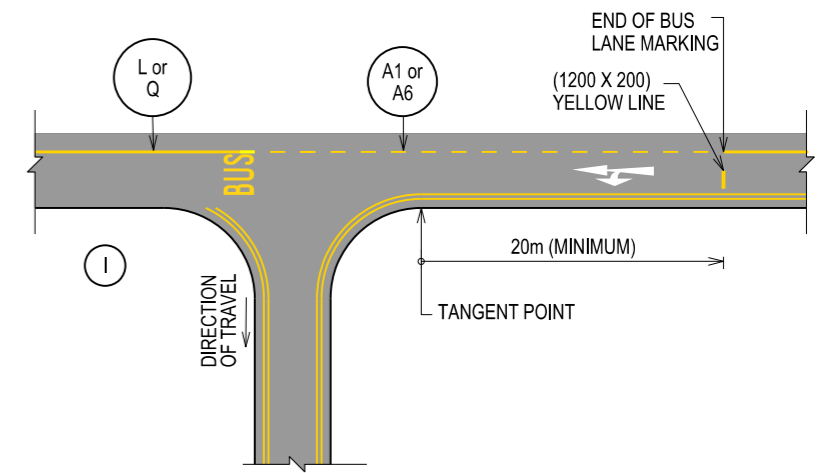
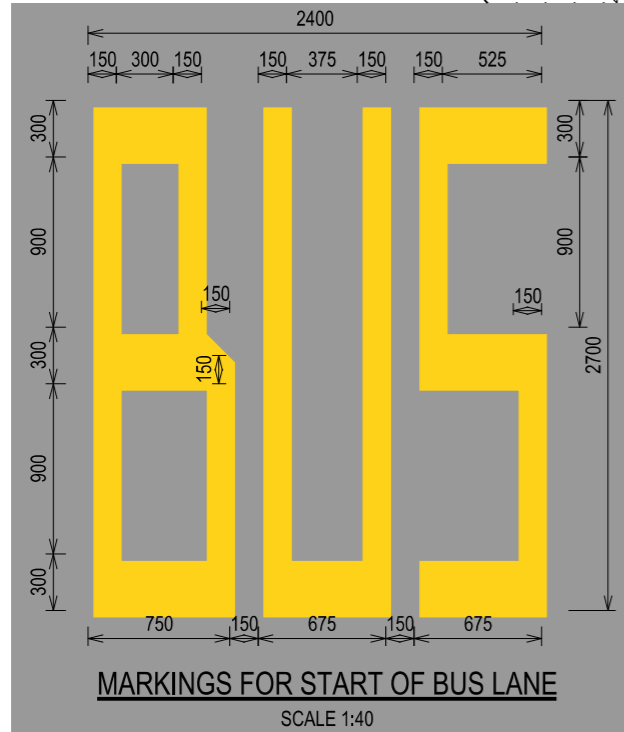
BUS LANE AT SIGNALISED JUNCTION

SCALE 1:500



BUS LANE AT UNCONTROLLED JUNCTION OR OPENING

SCALE 1:500



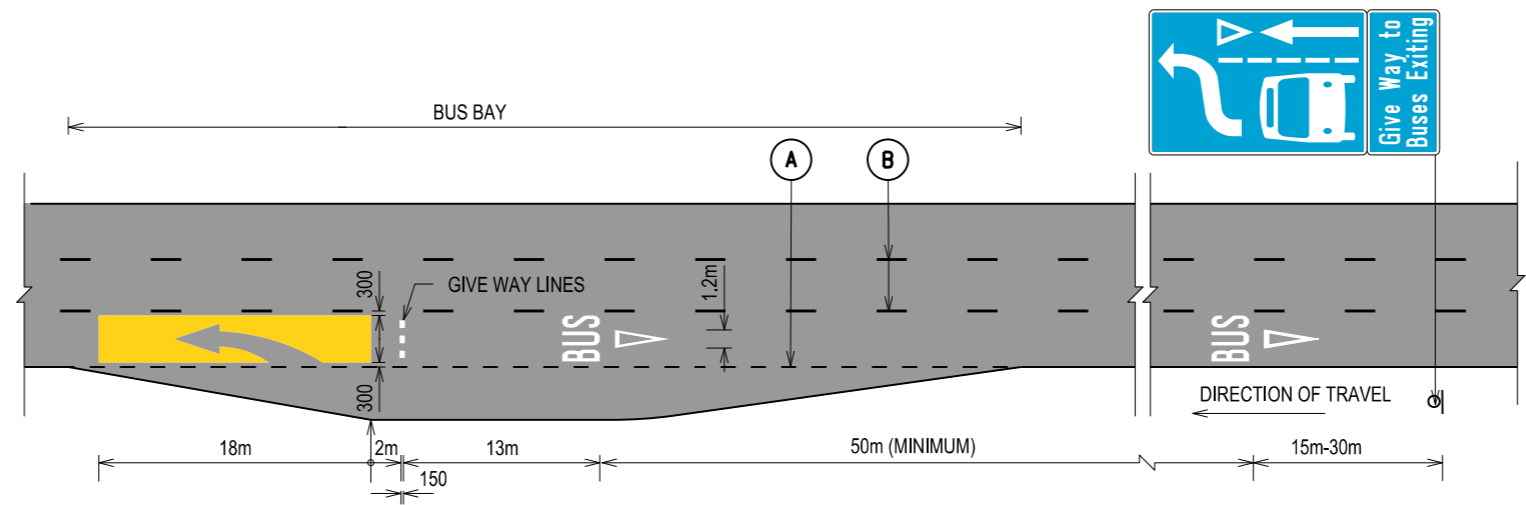
STANDARD DETAIL

BUS LANE MARKINGS



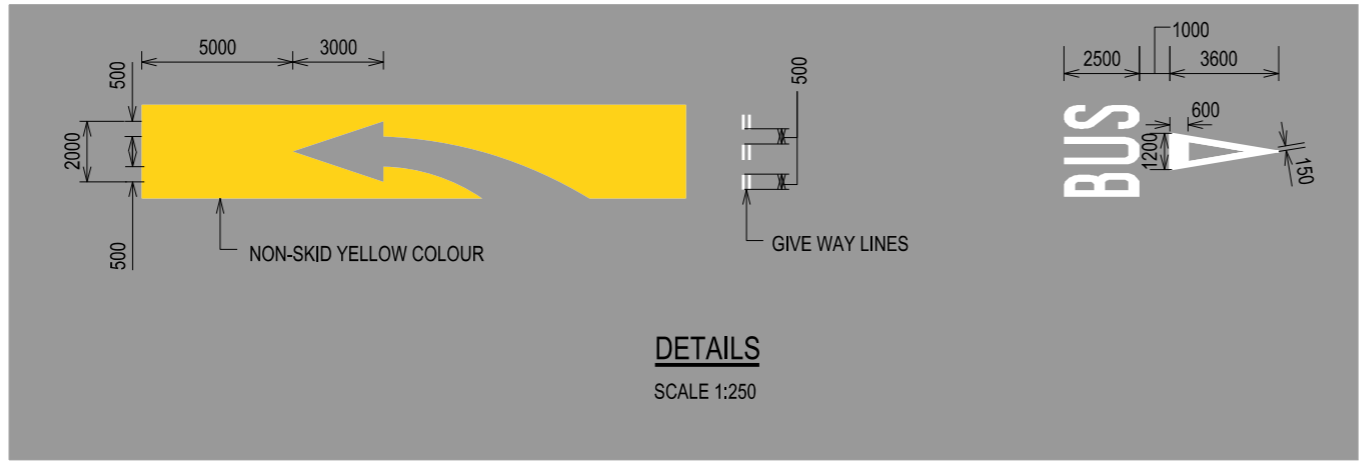
DRAWING NO.		REV.
LTA/SDRE14/8/RMS10		C
DATE OF ISSUE	SCALE	SHEET NO.
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REV.	DATE
C	APR 2019
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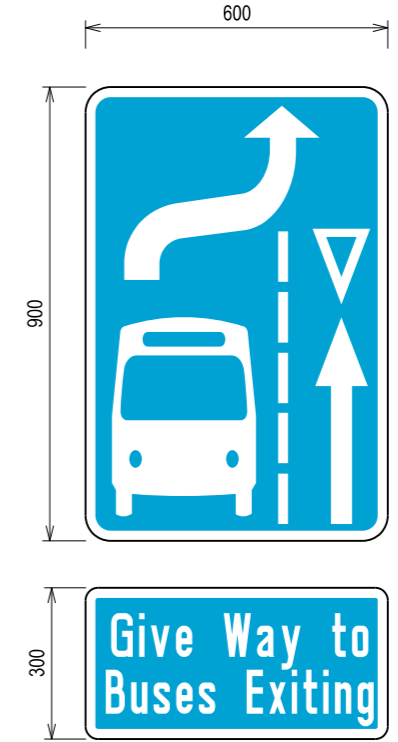
MANDATORY GIVE WAY TO BUS

SCALE 1:500



DETAILS

SCALE 1:250



135 X 118
INLINE 20mm

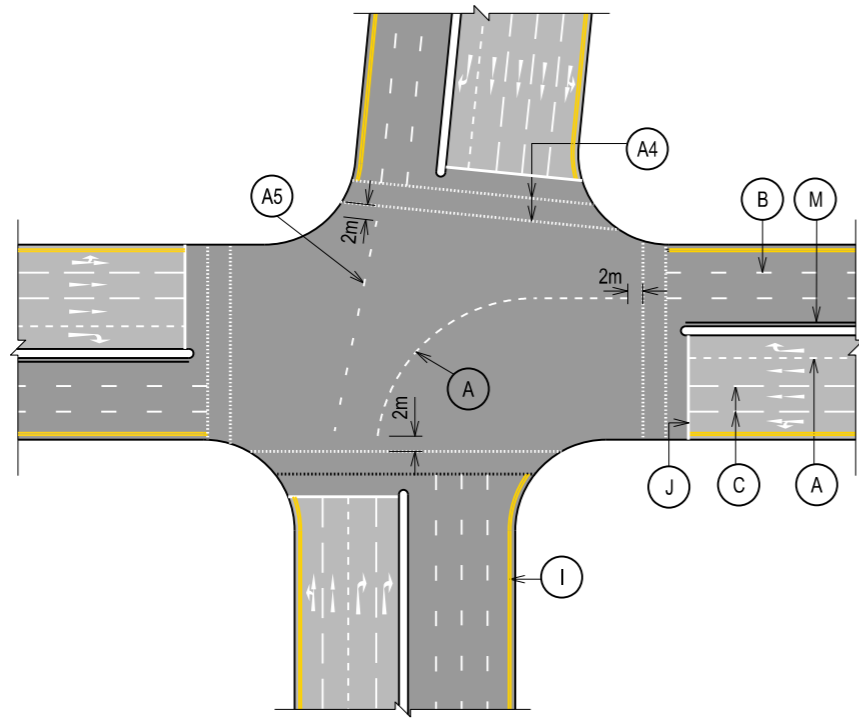
'MANDATORY GIVE WAY TO BUS' SIGN

SCALE 1:15

NOTES:

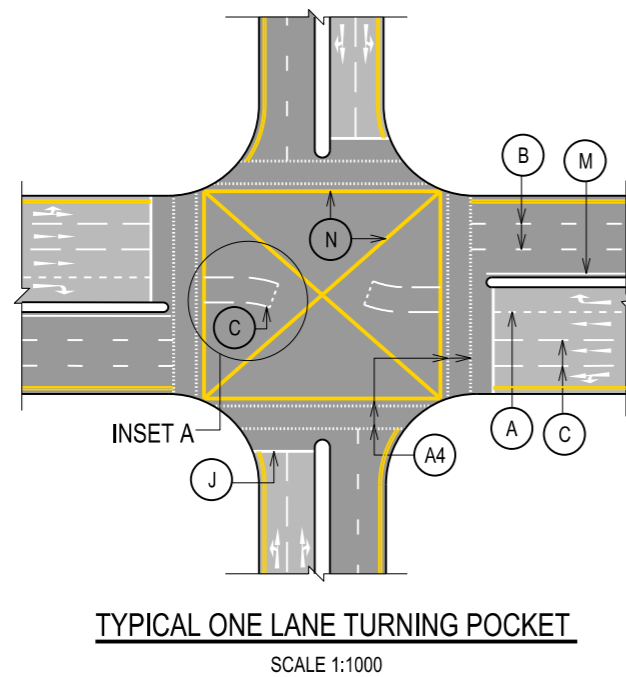
1. Colour code for the Bus Zone shall be of "BS 381C 355 LEMON" or equivalent for the section to be coated with yellow.

		STANDARD DETAIL				
		MANDATORY GIVE WAY TO BUS (MGWTB)				DRAWING NO. LTA/SDRE14/8/RMS11
REV.	DATE					DATE OF ISSUE
				1st APR 2014	AS SHOWN	1 OF 1

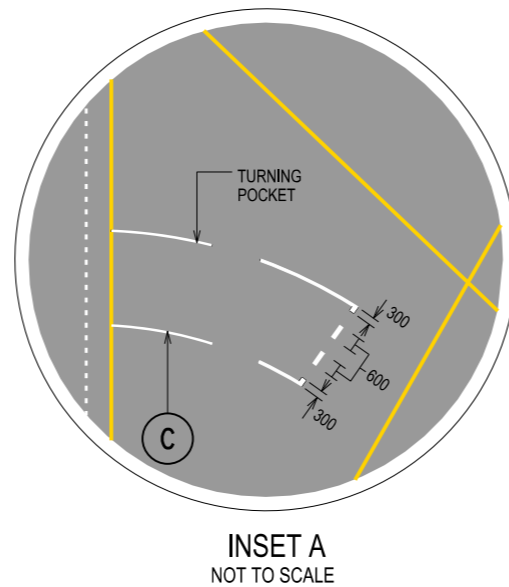


GUIDING LINES COULD BE APPLIED UNDER THE FOLLOWING SCENARIOS:
 a) For skewed intersections or intersections with crest where the receiving lanes are not clearly seen by motorists and where it is not feasible to realign the intersections;
 b) For complex intersections (usually large junctions) where motorists need to make right turn across more than 3 lanes (excluding exclusive right turn lane).

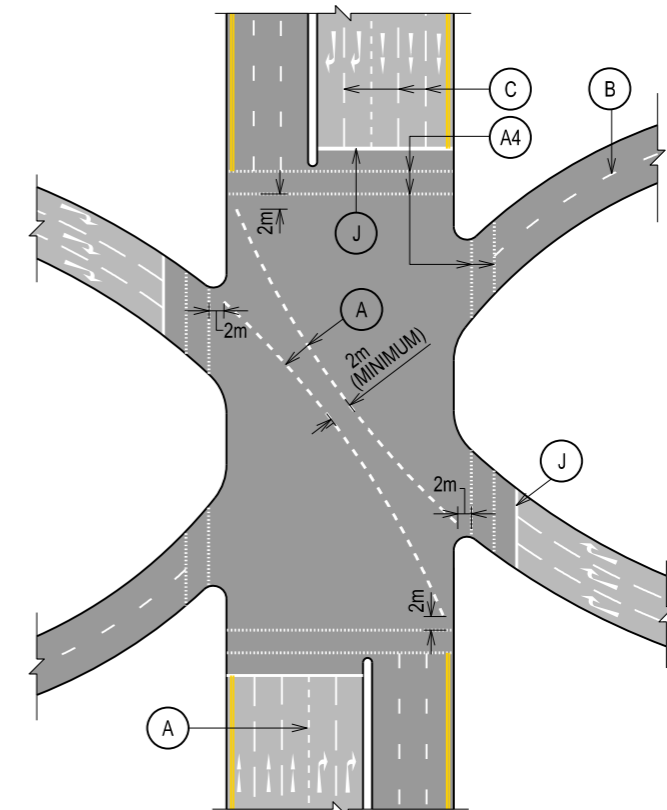
FIGURE 1
GUIDING LINES
 SCALE 1:1000



TYPICAL ONE LANE TURNING POCKET
 SCALE 1:1000

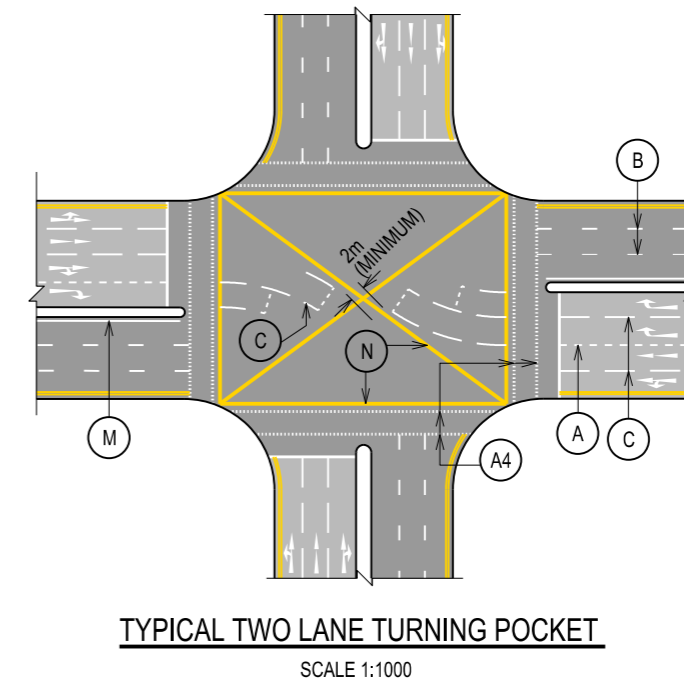


INSET A
 NOT TO SCALE



Boundary lines could be applied where there may be possible conflicts between two opposite turning traffic.

FIGURE 2
BOUNDARY LINES
 SCALE 1:1000



TYPICAL TWO LANE TURNING POCKET
 SCALE 1:1000

NOTES:

1. Use 1m mark by 3m gap (A5) for straight guiding lines and 1m mark by 1m gap (A) for curve guiding lines.
2. Guiding lines shall not recommended to be applied directly next to the pedestrian crossing lines where not possible, pedestrian crossing lines and or stop line may need to be offset (at least one lane width) from guiding line.
3. Guiding lines shall not intersect with existing turning pocket and shall not be drawn within turning pocket.

4. Guiding lines shall not be painted over yellow box markings.
5. The guiding line shall be provided based on the turning swept path for all vehicles.

STANDARD DETAIL

GUIDING LINES AND
 TURNING POCKETS
 AT INTERSECTIONS

REV.	DATE
A	OCT 2015



DRAWING NO.		REV.
LTA/SDRE14/8/RMS14		A
DATE OF ISSUE	SCALE	SHEET NO.
1st APR 2014	AS SHOWN	1 OF 1